

COLMAN'S



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Sorgo Department.

National Sugar Growers' Association.

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Fresh From the Field.

The request made in our last week's issue has been responded to by a few, but from these reports are very encouraging. We do hope that cane growers from all over the country will see the desirability of acting upon our suggestion and send in their reports. Just now no item could be of greater interest. The following is the request:

Now we want to know from all Northern sugar cane growers how the cane is looking and doing, and what the prospects are for a crop this year. And just now we want all to speak at once. Let us hear from all parts of the compass; so as to compare the several sections. A postal card will answer. Tell time of planting, the kind planted, height on the 15th day of July. The 12th of July will be Saturday, and should this not reach the eye or the ear of the planter by that date, let us have the best approximate estimate, carefully, and as near as possible correctly made, that readers in all parts of the country may realize the growth at this date.

THE GROWING CROP.

KNOX COUNTY, MO., July 12th, C. M. K. Our cane was planted from May 1st to 10th, all Early Amber. Height to-day 30 inches, stand splendid.

VERNON COUNTY, MO., July 12th, W. P. Prospect for a crop of northern sugar cane is very good, considering the late and wet season to May 1st. We are now needing rain badly. May 14th, I planted two acres New Orange now 40 inches high. Same day planted seven acres Early Amber, now 52 inches high. May 27th, two acres same, now 36 inches high. June 5th, two acres New Orange, now 23 inches high. July 2nd, one acre Early Amber, which is now two inches high.

ADAMS COUNTY, NEB., July 12th, L. F. G. Cane is doing well, is now five feet high, the acreage planted is not as large as last year.

LIVINGSTON COUNTY, ILL., July 11th, G. W. L. Considerable cane planted here this season of the Early Amber variety. Seed was procured from Western Iowa, and planted from May 15th to June 1st. Have about two-thirds of a good stand, but rains have been against the late planting, and unfavorable for other crops.

BUREAU COUNTY, ILL., July 11th, T. E. N. H. Our cane may be reported as follows: 30 acres three feet high, 20 acres two feet, 15 acres one foot, and a good stand all round. Early Amber, May 10th, second, May 25th, and last June 15th. We have never been able to supply the demand for sirup so far.

GREENE COUNTY, IOWA, July 12th, C. P. H. My 40 acres of cane planted during the last half of May, is from boot top to waist high, the latter on low land, which is just dry enough this year. There is no record of acreage this year over last in this county.

I wish some one would describe the method of using a rope sling on wagons, and the whole art of handling cane in four or five hundred pound bundles by the acre or running derrick, as understood by do at Rio Grande, N. J. As I conceive the common way carrier would move the cane around the yard, unload wagons, and take it to the mill, if some one will tell the best way to hitch to a 500 pound bundle of cane.

Can you not secure for readers of this interesting department of the RURAL WORLD, an explanation of the bunch of cane that was perched in the air in the illustrated supplement of those works published by you last year?

Had we some horse power arrangement for handling our cane, it would have a large amount of hard work and would cheapen the work.

The second question is to demand attention next year, for lots of that old for this year's planting was worthless of those who sold it, and involved large loss and labor on those who planted.

TROY, KANSAS, July 12th, X. K. S. My first cane was planted from the 10th to the 15th May, it is now from five to six feet high. I saw the first head come out to-day. My last planting was made June 5th, it is now two feet high and we are laying it off. We have plowed three times, failed to get a stand of cane, and planted first days of May late varieties, consequently had to cover with Early Amber. Success RURAL WORLD.

ANKIN COUNTY, TENN., July 12th, B. Have just measured cane, as follows: Early Amber on high land, 10 acres, 3 feet high, 7 feet 8 inches tall head in field 9 feet 8 inches. Orange planted May 9th on poor land 3 feet 3 inches—on good land, 5 inches. Link's Hybrid, planted 10th, on good land, 5 feet 10 inches, on very poor land, 3 feet 7 inches. Last varieties are measured by weighing the leaves of an average. The Early Amber measured 100 lbs. About 75 acres planted early and old. No fertilizers used. A small piece of Link's Hybrid planted May 27th, with which I have been very successful of super-

phosphate in each hill, now stands 3 feet high.

BUTLER CO., KAN., W. O. D. reports one hundred acres planted, part of Early Amber, part of Early Orange, and the remainder of Kansas Orange. Planted first time April 10th, but had to replant a part of that; planted again to about April 25th, and last about May 5th. All his cane is doing well with a good stand, and some of it was about ready to head out July 7th.

JACKSON CO., IOWA, July 13th, A. L. P. I like your suggestion that statements of the condition of the cane crop all along the line be published and hope your reports will be full.

I began planting my 40 acres May 20, and finished June 6. There is but little difference in the size of first and last planting. It now averages standing about 1 foot high, though many hills would reach double that height. Of course, the leaves if straightened up would be much higher than they stand. The stand is only average. Our spring was cold and backward. Quite a difference in the vigor of the young plants is noticeable. White Imphee from Tennessee is best, next comes Amber from Minnesota, and Kansas seed is poorest of all. I am astonished at the very great influence the condition of the soil has over the germinating power of the seed. Planting done when the soil was in good condition produced a good stand, while the same seed planted only two or three days later, when the ground was wet, comes very near being a failure.

LENAWEE CO., MICH., July 12th, Daniel Root. Our Early New York Hybrid cane, planted May 5th, stands three feet high on the average. Early Amber planted May 12th, stands on a field of twenty acres an average of 2-1/2 feet. Same variety planted June 1st, about eighteen inches. There was more cane planted in Michigan this year than last, but much of the seed failed to germinate. Some plant too deep and others before the soil is warm enough to germinate the seed.

HILLSDALE CO., MICHIGAN, W. A. H., July 13th. Cane is looking fine, far ahead of last year, and the largest I ever saw here at this season. It stands four feet high, and is very early. Early New York 5 feet high and very even; my amber is, however, only 4 feet. The fruit crop promises well.

AUDRAIN CO., MO., July 14th, J. G. W. I planted five acres of Early Amber cane, May 19th, which is now over four feet high, another plant on May 27th, which is 2 feet 3 inches high. Both look well, indeed, all the cane in our neighborhood gives promise of a big crop.

WHITESIDE COUNTY, ILL., July 14th, H. L. J. My Amber cane was planted May 20th, and to-day averages 33 inches in height. I have ten acres in cultivation.

For rapidly clarifying the juice of sorghum.



And making light colored sirup a certainty. The smallest Filter will clarify a barrel of juice perfectly in twenty minutes.

Every Filter guaranteed to do as claimed. Address, O. F. BOOMER, 47 Brooklyn Ave., Boston, Mass.

Day Again.

EDITOR RURAL WORLD: Among facts published in Field's report of January 1882, I find the following: In 1881 Prof. Weber and Scovell, then working with a rigid mill made three experiments at Champagne with these results: Experiment 1, 43.40 per cent. in juice; experiment 2, 41.32 per cent. in juice; experiment 3, 36.33 per cent. in juice.

In the discussion upon this subject, participated in by Messrs. Hedges, Griffin, Belden, Thoms and others, the statement was made that cane mills obtained only 40 to 50 per cent. Mr. Thoms said the best results he ever obtained were "52.553 per cent." Mr. Griffin said the average in Louisiana for fifty years was about 50 per cent.

In a letter from Mr. R. Seig of New Orleans, to Prof. Wiley, dated December 15, 1883, I find the following:

"We were then still sharing the common belief of planters, that they could and did, with their more powerful mills and presses, extract from 70 to 72 pounds of juice out of every 100 pounds of cane. . . . You may therefore judge how great must have been surprise when, by the use of scales, by the measuring of the juice and by the usual polariscopic tests, we ascertained beyond a doubt, that only a very few mills in this country did extract more than 55 to 58 pounds of juice." [See bulletin No. 2, Chemical Division Department of Agriculture.]

These results were upon Louisiana cane, which contains a larger per cent. of juice than sorghum, and if I mistake not, Mr. Schwartz, of Edwardsville, says it more easily crushed than sorghum.

Fifty per cent with the former, would be no better than 45 with the latter.

In the report to the National Academy of Sciences, November 1882, by Prof. Silliman, Chairman of the Committee on Sorghum Sugar Industry, are the statements of Mr. B. V. Ransom, of Salem, Neb., who received a special and complimentary notice because of "his accurate statements." He closes his statement without giving the style of mill, by saying, "I got only 30 to 40 per cent." Knowing the mill, it is only necessary for me to say it was not Squier's.

Had I been unfair enough to quote only the low percentages of other mills, I might justly have been accused of misrepresentation, but I have given as complete an exhibit for these roll rigid mills as I could, and could their manufacturers make any better showing they would have done so before this.

Now, I do not claim that some obtain a low percentage with the Squier mill. There are men who manage to do poor work with the best of tools, but that is no discredit to the tools. I only say those high percentages have been obtained by the Squier mill, while I find no such reports for others, nor do the parties assailing me show any. I have been assailed in other publications in the same way, but in no publication do they controvert a single statement I have made, and what is more they can't do it.

My attention was first strongly drawn to the point by the remarkable showing in the case of a No. 3 Pearl against Kenney's No. 3 Niles at Morrisstown, Minn., in the fall of 1880, seven-eighths of an acre was exactly divided between the two, the Niles yielding fourteen gallons per acre and the Pearl twenty, or nearly one-half more.

By the way, in my last I quoted at 60 per cent Drummond Bros., of Warrensburg, Mo., and the Jefferson (O.) Works. By some means the phrase "Both Squier mills" was dropped. Yours truly,

P. S. Oh, yes, Mr. Field's "Friend," Root, has broken out again! Well, as in his first so in his last there is neither fair argument—nothing but innuendo, slur and personal abuse. I don't object to "criticism," but abuse is not criticism. Any thing can abuse. When Root can write like a gentleman and give facts and argument instead of vicious abuse so out of character in the genial columns of the RURAL, he may merit further notice.

Now For That \$100.

IF A. L. Henry, President Blauphte Apparatus Co., will send his \$100 to Col. Colman, Editor R. W., he will send him the card with Mr. Anderson's signature as I stated. Col. Colman is entitled to the \$100 for printing so much ignorance and idle boasting. I do not wish to insult Mr. Anderson or any one else. When an article is published in the RURAL WORLD that will mislead any one engaged in the northern sugar cane industry some one should entice. I am a man of few words not given to boasting, and I like to see men dealt with fairly. If we succeed in the sugar industry there must be some common sense in the articles written to promote it.

DANIEL ROOT.

Standing Behind Mr. Root.

EDITOR RURAL WORLD: I have been taking some interest in the little free handed fight on the mill and blauphte business. I am tempted to stand behind Mr. Root on the mill question and say go on.

It stirs me up sometimes to see what some parties publish about their wares in public print. If it were in the advertising column where all such stuff is free and nobody would think of believing it, it would be different.

The whole thing puts me in mind of the way the western R.R.'s have advertised their land. They come out in glowing terms of the beautiful rivers, the fertile, abundant crops, etc., giving in stanzas of 80 and 90 bushels of corn per acre, and 30 and 40 of wheat. These may be all true enough, but they lack much of being the whole truth. Eighty bushels of corn to the acre is 80 cents per bushel gives \$16, at a total cost probably not to exceed \$8 per acre, gives a handsome profit. But when the whole truth comes out that the average is not 40 bushels per acre, the total cost per acre is \$16, and the profit is all gone except that which the man gets for his own and the team's labor. Then if the average is not 40 and sometimes the maximum reaches 80 or more, where is the minimum and the profits?

Every one will agree that the kind of plowing and culture the crop of corn receives will make some difference on the crop. So my experience with the cane mill teaches me that it makes a great difference who is doing the business. I do not suppose that there is a crusher made now, but can obtain a record of seventy per cent. of juice out of selected cane, but take the season through of from 60 to 90 days' work and the record will be away down. In some localities and seasons, with certain workmen, it will go below 40 with any crusher.

Of course we do not expect manufacturers or their agents to say that their mills will not produce 40 per cent, on average, but it is due to the public to say by those with experience and observation, that under certain conditions any of them may come below 40, and that none of them will produce for a season of 60 days 70 or even 80 per cent.

of the weight of the cane at its best, even by the most careful management.

There are many that can testify to being misled by the truth, who would not have been by the whole truth.

H. CULBERTSON.

Settling Tanks and Defecators.

"Firepan" asks me if I use settling tanks. No. Why? To save time and money and the color of the sirup by shortening the process. But two juice tanks, a defecator, an evaporator, and a cooler, are indispensable to a good sirup. Let the juice settle in the tanks, settle in the defecator, and you will find no use for other settling tanks. After settling you will find in the bottom of the juice tanks, among other things, mud, which an ordinary filter will remove, since the dirt is decomposed by the juice. Nothing but its superior gravity will remove it. Hence the necessity of settling. Do any of you have a filter in which you can pour muddy water and it will come out clear? Then don't expect it of muddy juice. What is the simplest method of getting muddy water clear? Settling. Juice is water with a little sugar and other matter mixed. If defecation has been rightly performed and line properly used, at the bottom of the defecator, after settling, will be found a heavy deposit of offensive matter, which I hold (with all respect to my friend Folger's view) cannot be removed except by line or equivalent defecation.

Having brought your juice to a boil, or as near as possible, without disturbing the blanket of scum, draw your fire and let it settle twenty minutes, or if you wish to be very certain of your process, gently push aside a small portion of the blanket and you will see the juice filled with small particles floating about. Wait till these subside, then draw off the juice. Many advise to sweep off the blanket and reheat for a second blanket. But this involves a loss of time, poorly compensated for in the result, since this can be taken in the evaporator. Also the specific gravity of the under side of the first blanket is so near that of the juice that it is driven back into the juice and cannot be fully retaken. Let any one doubting this stir the first blanket back into the juice and try to retake it. If a second blanket is to be taken in the defecator, let it be formed under the first. Do not disturb the first until the juice is drawn off. Draw immediately into the evaporator, and reduce as quickly as possible. Use no finishing pan. All delays tend to oxidation, and are at the expense of the color of your sirup. If your evaporator will not finish for you throw it away. Get the sirup to the cooler as soon as possible. Cool immediately, if possible. Experiment: Take a little sirup out of the evaporator and cool it instantly in a shallow vessel dipped in water, then compare with that cooled slowly, and you will appreciate the difference.

Those who boil by the batch plan should have the bottom of their coolers covered by 3-4 pipe, through which a stream of cold water should be made to flow. Also a stream should flow under each cooler, and the water should be kept running. The sirup should barely cover the pipes.

By the plan above described, you can make a sirup that will compete with any man's, though he use settling tanks and finishing pans, ad infinitum. The natural course was that the sirup in evaporating, I should have said that it will be necessary to have two defecators, so as to draw from one while the other is getting ready.

W. L. ANDERSON.

Horizontal vs. Vertical.

EDITOR RURAL WORLD: In your issue of June 12th, I see my name used by J. A. Field & Co., under heading of "Misrepresenting Cane Mills, Per Cent of Juice." With due justice to all parties, and also myself, I would say, if my language made me say I liked the Star mill the best, I did not intend it to convey that meaning. It was at the Indiana Cane Growers' Convention we were discussing cane mills and machinery. I believe I said we would advise any one getting a mill to get a Horizontal mill, as I had used a Buffalo mill, also the Star mill made by J. A. Field & Co., St. Louis, and liked them best. I also said I had used a Vertical mill for eighteen years, and since using the Horizontal mills, I would not have a Vertical mill as a gift; neither would I, as I consider the Horizontal mill just that much superior to the Vertical mill, both in saving the juice and feeding the cane.

I do not charge Mr. Field with misrepresenting me intentionally, by no means, but merely misunderstanding me. I hold Mr. Field in too high esteem for that. I am personally acquainted with him, and have found him to be a gentleman in his dealings, and his mill all he claimed for it. Also, Mr. Squier of Buffalo, I found him manly in our dealings, and his mill all he claimed for it.

F. M. ROLL.

McGonigle, Ohio.

Northern Cane Growers' Supplies.

It ought by this time to be very generally known that in St. Louis is found a firm who manufacture or keep for sale nearly or quite every article that is used in the manufacture of sugar or sirup: we refer to J. A. Field & Co. They not only make twenty-two sizes of cane mills, several sizes of Stillb's evaporator, steam coils and copper evaporators, defecators and settling tanks, filters, centrifugals and litmus paper, but keep on hand saccharometers, thermometers, etc. They also make corn shellers, feed cutters, Big Giant and Little Giant New Giant and Mound, and feed saws, 18 sized, wood sawing.

A Hamburg paper states that 35 new sugar factories will be worked in Germany during the forthcoming season, representing a daily working of 21,900 cwt. It would seem that the various countries in Europe are able to work a total mass of 210,000,000 cwt. of beet root, yielding 20,000,000 cwt. of juice. This, even in Germany, is looked upon as excessive production.

Parties wanting to improve their hogs would do well to write to C. J. Stocker, At- taints, Ill., whose advertisement appears in another column. His stock attracted much attention at the Central Illinois fair last year where they won many prizes.

Much in Little.

When I read in the RURAL WORLD, of the grand success, that so many of your contributors write about, in the sugar and sirup industry, it makes us poor frozen rats away up in this frosty region ashamed to say what we are doing in the production of sweets. However we shall not say die yet, but will try it again as strong as ever. Our cane was very nearly a failure last summer. It was very late and an early frost finished it for us in good style. It froze the cane so that it would fall apart at the joints. Yet I made almost eight hundred (800) gallons of sirup. It was not very good, though. Not one-fourth of the cane had headed out.

It took over twenty gallons of juice to make one of sirup. I would like very much to fasten the M. V. C. G. A., but I will have to content myself with reading the proceedings of the meeting. There is one thing of which I wish to speak.

In the reports found in RURAL WORLD, about cane, one says his cane is three or four feet high, and another says it is not dated so we do not know how they compare with ours.

Late last summer I saw an article stating that the cane was six inches high. This man lived in Kansas. Our cane was a foot high at the time, and yet it did not mature. Now as those articles sometimes remain on the editor's table for want of room to publish them, would it not be for the benefit of your readers, to date such articles? Then we could make some comparison about comparing their cane with ours.

Some parties have used a garden rake on their cane, and find it to be the best and quickest way to get the weeds out of the rows. It rakes up the weeds but does not injure the cane.

Now we will thresh some seed. I find it the best way to thresh seed, without removing the hull or cracking the seed, such as we carry horses with; lay the heads of seed on a board or table, place the comb lightly on from one to three heads, draw the heads from under the comb two or three times and the work is done. Then run through a fanning mill. Boys can do the work for ten or fifteen cents, per bushel. This way saves the hulls on the seed, which is very necessary in dry soil, as it acts as an absorbent to draw moisture I find that the seed with hulls will come up in the less time and stronger than that which is hulled. I will close by wishing the RURAL WORLD the best success.

Omro, Wis. C. JUDSON.

The Sugar Trade.

Says the New York Grocer: At the present time the cane sugar is placed upon the increase in the consumption of sugar this year over last. Up to date it is 90,289 tons more than for the same time last year. This increase is more apparent than real. The early part of last year, indeed, we might say, in the first half, the change of tariff checked the movement of sugar considerably, not only with the refiner, but the trade. Stocks kept only amounted to what were the absolute immediate requirements. The natural consequence was that the consumption for the first four months fell off 23,987 tons from the year previous. This, therefore, without even reckoning the increase in the population in two years, reduces the apparent gain to 65,302 tons in two years.

Another feature must be taken into consideration: The exports of refined have been unusually large, amounting to another 12,000 tons. If we take into consideration the low prices which sugar is now and has been selling, and the consequent disposition of the trade to buy because it is cheap, also the increase of the population in two years, there is not any very wonderful increase in the 65,301 tons over the same time two years ago. Already this increase is falling off, for the distribution last week was 12,483 tons less than for the week previous. It is, therefore, highly improbable that the past rate of consumption will be kept up, and at the same time we think that to use a certain rise in the price of the increased consumption misleading.

The West Indian (Barbadoes) of April says: The weather conditions favorable for reaping, and the canes are yielding well. The shipment of produce has commenced, but at prices that scarcely cover the cost of production, from \$2 50 to \$2 60 for sugar and 14c. per gallon for molasses. The weather has been equally favorable for the springing of the young crop next year and bringing to maturity the crop for the present year in course of reaping. The drawback is to find a market for the sale of our produce at a remunerative price after reaping it. The accounts from England tell of the large stocks of sugar remaining unsold in the great shipping ports, and the reports from New York and other ports on this side of the Atlantic are of the same disheartening character.

A Hamburg paper states that 35 new sugar factories will be worked in Germany during the forthcoming season, representing a daily working of 21,900 cwt. It would seem that the various countries in Europe are able to work a total mass of 210,000,000 cwt. of beet root, yielding 20,000,000 cwt. of juice. This, even in Germany, is looked upon as excessive production.

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Agricultural.

Silos and Ensilage.

T. H. Hoskins, M. D., writes in the agricultural department of the New Hampshire Journal as follows:

We have never been able to make good milk for long, and have never made even fair butter, when the cows were fed only on corn-fodder. The milk becomes thin, the cream becomes white and scanty, and the cow gets out of condition, on both corn-fodder and fodder-corn. By corn-fodder we mean the ripe stalks with the ears removed. By fodder-corn we mean sown corn cut and used specially for feeding, green or dry. In the last case the result is better if the sowing is thin enough to allow ears to form, and in the first case it is better if the gathered corn is ground and fed with the fodder. But in none of the cases, where corn is the only article fed is the result satisfactory in the long run.

As the defect is in the corn plant itself, it not having the right composition (as good grass has) to give the right result in feeding, it is not astonishing that exclusive feeding of ensilage or corn should also be a failure. It is still corn, the silo has added nothing to it, though when well ensilaged it is preserved in a soft, digestible state that makes it very acceptable to the cattle.

At Houghton Farm, where experiments on agriculture and feeding are carefully and systematically made, Major Alvord took ten cows, all of them giving about the same quantity of milk, and fed five of them on ensilage and five on good meadow hay—giving the first the silo ensilage they would eat. The milk was carefully weighed and tested, and the product churned separately. It was found that while the ensilage increased the product of milk, there was a decrease of fatty matter, until the milk was a time when the cream from that milk would not make butter.

Now while we think it was a mistake to give the ensilage-fed cows all they would eat of a food of which they are so very fond, and that the feeding of corn then all they would eat of bran, or oats, or corn meal, we are quite prepared to find the result of exclusive ensilage feeding much what it was. If the experiment were repeated with a definite instead of an indefinite ration, judgment being exercised not to allow the cows to hurt themselves by over-eating, the test would be prolonged, perhaps, but a similar result would be reached in the end.

Corn is not a sufficiently nutritious food for an exclusive diet to milk cows. It furnishes plenty of excellent material for butter, but you can't have the butter unless the cheese comes with it in the milk. Corn-fodder does not furnish the material for the cheesy matter, and consequently the milk, unless the cheese comes with it, is not fit for butter. Let us take an illustration from crop-feeding, to make this plainer. We will take the corn crop itself. It must have nitrogen, phosphoric acid and potash in the soil, or it will not grow and the corn will be poor. The nitrogen is lacking, (although corn calls for but a little nitrogen, and has but little nitrogen in it) the crop will be a failure. Now just as the application of a fertilizer deficient in nitrogen results in a failure of the crop, so the feeding of corn exclusively to cows fails in producing natural milk, because corn itself has too little nitrogen to make the cheesy matter of the milk, and as this cannot be made, the butter will not be made either, since both must go together, or fail together.

This is a rather singular thing, at first sight. Corn, both stalk and grain, is rich in butter-making material, yet because it is lacking in albuminoids (nitrogen compounds) we cannot get the butter from the milk, and the milk is not fit for butter. Just as the little girl won't go to school without her brother, so the butter won't go into the milk unless the cheese goes hand in hand with it, and as the cheese (cheesy matter) is not in the cow's food, the milk is also destined to fail. The nitrogen is lacking, and the milk is not fit for butter. Just as the little girl won't go to school without her brother, so the butter won't go into the milk unless the cheese goes hand in hand with it, and as the cheese (cheesy matter) is not in the cow's food, the milk is also destined to fail.

To prove that this is the true explanation and that only a moderate change is required in the diet of the cows, by the addition of a small ration of grain, to furnish the indispensable re-enforcement of nitrogen, we

The Home Circle.

THE DAY IS AT HAND.

Awake, awake; the night is past.
The morning comes: awake.
Star after star is fading fast:
Ere long the day will break.

Even now the mountain tops are bright
With the advancing rays.
Oh! sleep not through the hours of light,
A wake to life and praise.

Cast off the robes of sloth, and gird
Your heavenly armor on,
Soon will the trumpet's voice be heard,
Of God's returning Son.

Ye would not that your Lord should find
His people slumbering still?
Arise! let body, soul and mind,
Unto do His will.

Short is the time, oh! spend it not
For earth and sense alone,
Nor let the warning be forgot,
That "ye are not your own."

Walk ever where the daylight beams
Fall clearest on your way;
Ne'er wandering from the sacred gleam
Of that celestial ray.

So, when He comes, whose blest return
Each advent hails more near,
Your hearts with holy joy shall burn,
His welcome voice to hear.

And ye who bore His cross below,
Shall share His crown above,
The glories of His kingdom know,
And praise His endless love.

M. G.

"LITTLE CHICKS."

[Written for the children who read the
RURAL WORLD.]

Well; what shall I write
For my darlings to-night,

All I sit here alone—
All alone?

Shall I tell them a story,
A wonderful story?

How meat is made
Out of a stone?

Once a little, white banty,
A prettier can't be,

Went scratching around
For some grain.

She picked up some corn,
And sure as you're born,

She picked up a stone,
That is plain.

She strutted away,
And the very next day

Received a most
Wonderful feat:

For the wisest of men
Never had such a feat.

Went into a sinky,
And hid herself

Slyly away,
And each day at her leisure

She added one treasure
To these little pearls

In the hay,
Then by day and by night,

Through the darkness and light,
She quietly sat

On the nest,
Pretending from harm,

And keeping it warm
With her wings, and her soft,

Dovey breast.

And what happened one day
To that nest in the light

And the little white pearls
It enclosed.

Is more strange by far,
Than steam horse or car,

Or anything man
Has proposed.

O, the sweet little things,
Peeping out from their wings,

So cunning, so dainty,
And small;

Oh eyes quick and bright,
Peeking out on the light

From the top of a soft
Little ball.

O, mischievous change!
Most wonderful change!

This something so
Mortal can give,

This spirit that quickens
The dear little chickens

Breathes into them life,
And they live.

PAULINE.

Education.

In the following letter to a Nebraska
paper we see the deft hand of our own
"Walrus."

"In 1870 the committee of education,
at Washington sent out a series of care-
fully drawn, comprehensive, and search-
ing questions, to the great centers of
labor in all parts of the United States.

These centers were selected as to repre-
sent every "kind" of labor, from the
rudest and simplest, up to the most skill-
ful. The object of the questions was to
determine the relative productiveness of
the laborer and his manliness—to his
Godlike nature."

"Education is the key to wealth. Edu-
cated labor is not likely to be in-
posed upon, and is not given to strikes.
It knows its reasonable and just rights,
and maintains them in a legal and peace-
able manner."

"The first incentive to action is self-
support, gaining a livelihood. The key
to self-support is education. Money and
labor invested in education are capital
invested in such a manner that the prin-
cipal is absolutely safe and the income
large, sure, and promptly paid."

"Thus wrote a man who had given his
subject—"illiteracy and education in
their relation to wealth and pauperism,
crime and morality" much close thought
and careful investigation of census statis-
tics. The conclusions he draws show
overwhelmingly that "illiteracy" or
ignorance is the direct cause of nearly all
the pauperism and crime, and the best
remedy against these is intelligence or
education for the children. Education is
the direct source of wealth and moral-
ity. Now if this is true of common
school education in general, and of com-
mon people everywhere, and that know-

we, as farmers, are losing money every
year because we are not sufficiently edu-
cated? There are hosts of ignorant farm-
ers who scout and scoff at "book learn-
ing," and won't so much as look at an
agricultural paper, but the premises
tell the story of their want of success,—
a lack of intelligence. May it not be if
we would read and study and think
more, do less hard manual labor, that we
would live better, enjoy life more, and
get rich faster, if we would but use
what? These are points worth thinking
about."

Science in Woman's Life.

(Thesis for Master's Degree presented by
Mrs. Nellie S. Keadie, Class of '84 at the Kan-
sas Agricultural College, Commencement.)

The drudgery of life comes alike to
men and to women. As we look through
the world and count the many occupa-
tions in which the dwellers of earth are
engaged, we see the numbers of men
tolling for new knowledge in the vast
fields of what we call science, and the
question arises, Why is it that women
are, to a great extent, left out of this
work? Are the very few who give up
their whole lives in pursuit of new facts
the only ones who could do scientific
work or have the scientific knowledge? Is
the wife and mother who toils on in the
home, making it a haven of rest for the
weary ones whose work is outside and
beyond its walls, the only one of all the
band who can have no sympathy with
new researches in the realms of science?

If we stop to think, she, of all others,
should have an interest in that work,
for her life is made up of acts carrying
out and developing the result of such in-
vestigation. Man's work is in a great
measure scientific, and woman's work is
also, simply what is usually called
"woman's work," that is, the prepara-
tion of articles for food.

We may take ornithology, and our
birds are many of them, offering an
excellent field for the study of science.
The merry "Bob White," whistling so
cheerily in our wheat fields, gorges him-
self that he may, in the end, become that
most delicious of breakfasts,—a "quail on
toast." Prettily Bob whistles in the
North with his song, but when he flies
South he feasts on the rice swamps,
till, as the "reed bird," he is brought to
the table of some dainty Creole. All the
way through the list, up to the wild tur-
key of the West, on our prairie
chickens,—most so much esteemed that
even Royalty is trying to acclimate them
in Canada,—and the gray goose, flying
with his hoarse "honk" toward warmer
weather—every class has its offering for
the table. And all the work, then, has
no interest in the study of birds ex-
cept to simply make ready for eating
what is left after life—that which made
so precious in God's sight and
beautiful in man's—has been taken from
them?

The Government spends money in ex-
periments. The farmer stocks his ponds,
his brooks or his lakes with fish. The
three laborers, the busy schoolboy or the
really devoted disciple of Isaac Walton,
spends hours with hook and line, luring
the hapless fishes to their death, and
then their work is vain, unless the busy
housewife, with her deft fingers and the
proper amount of heat, shall fit these
products of so much labor and skill for
the dinner table. How much more real
enjoyment may she give, if, while pre-
paring these foods, she knows something
of the story that may be told of their
mode of living; the food they ate, and
the changes they have undergone before
coming to her table?

But for the science of botany, and
growing out of this, the various branches
of plant study, we should have few of
our fruits and vegetables. The differ-
ence is marked between the hard, sour
crab-apple found in Asia, and our own
tender fruit, that gives us in every month
of the year a dish of delicious apple
sauce. Still, the better has been evolved
from the worse, and the improvement in
this case is no greater than in many
others. In this branch, as in nearly all
the rest, man's labor for improvement
supplemented and carried forward by
woman's deftness, all comes to one end
all culminates in that miracle of modern
science—a good dinner.

Chemistry, the grandest science of
them all,—for in many of its branches
the care of human life is its end and aim
—should be of the greatest interest to
the woman who carries on the everyday
work of a home. The making of a loaf
of bread brings out more reactions than
does the resolving of dynamite into the
harmless elements of its composition. The
washing of a pan of dishes brings into
use more agents and causes more
chemical changes than the formation of
the most gorgeous rainbow that ever
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of a window or a painted door calls for
as much knowledge as the making of
that window or door, and the lack of
knowledge of the best methods of doing
hard things about a woman's work,
sometimes costs the life of the house-
keeper, bringing desolation to the home
and despair to the hearts of the loved
ones.

It is not only the heavy work that
wears out a woman's life, but work that
is barren and hard, giving no pleasure in
life from day to day, dragging another
task forward before one is out of sight,
no piece of the work bringing a thought
of the beautiful, because there is no ap-
preciation of the many wonderful things
going on under the tireless hands that
bring about so many pleasant results,
and no idea of the beauty seen in every
day things. That kind of work wears
out a woman's life, giving her no pleas-
ure as she lives along, and leaving only a
dreary blank to look back upon when she
grows old and sits down to await her
summons home.

God gave to the children of men the
blessing of labor, but in order to have it
of the greatest benefit, it must be glori-
fied by thought; without this it is mere
drudgery. Ruth says it is only by labor
that thought can be made healthy, and only
by thought that labor can be made happy;
the two cannot be safely separated. This
is the keynote of all true education. The
object of the long years spent in
study is to better fit boys and girls for the
duties that await them as the men and
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A woman likes to do dainty work.
Pretty things grow naturally under her
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They cannot take the place of real,
practical knowledge of everyday work.

A girl may have a most thorough
knowledge of music, may be able to
charm all friends with melody, and yet
be a failure in her wild surroundings, and
understand the changes or transforma-
tions nature carries on before her, she
make a home full of happiness and

joy, from which may go out mounds that
will wield an influence in the world too
great for measurement, and of which the
end shall not be told.

There is so much in the beginning of
education. The little child playing
about the door finds an insect, a flower,
or a curious pebble. The baby mind
opens eagerly to grasp anything told of
the treasure, and just there may be the
first lesson in entomology, botany or
geology. Not a day will pass but the
mother in which she will not find
use, in the teaching of her little ones, for
some of the sciences of which she has
knowledge. As there is no end to labor
in these sciences, so there is no end to
use for them. And they really consti-
tute the greater part of useful knowl-
edge in all the relations of life—a woman's
life even more than a man's, for on her
rests the greater responsibility of mak-
ing the home life cheery. As our minds
grow stronger and wiser, the outside
world will grow richer in happiness, to become a
stepping-stone to the home beyond,
where we may know all things as they
are.—Industrialist.

Losing a Day.

One of the curious submits the follow-
ing question to an exchange which may
prove of interest to our readers:

Our school teacher has asked my class
the following question: Suppose a person
to start from a certain point at 12
Wednesday noon, travel westward with
the sun, and arrive at the same place
from which he started at 12 Thursday
noon. He goes round every one he asks
tells him it is 12 o'clock Wednesday, but
when he arrives he is told that it is 12
o'clock Thursday. Now where or at
what time did it change from Wednes-
day to Thursday?

Answer. The change occurred on
crossing a certain line in the Pacific
ocean. After crossing this every one he
asked should have told him it was 12
o'clock Thursday. Suppose another case,
not so simple but more nearly practica-
ble. Let our traveler leave New York
and go West night and day, at about
thirty-six miles per hour or through five-
teen degrees of longitude in a day. The
result would be that each of his days
would be twenty-four hours long. He
would go round the world in twenty-four
such days; but in doing so would lose
one day of his calendar. The re-adjust-
ment of his time should be made upon
crossing the line mentioned above. If
he arrived at it Saturday night, he would
at once become Sunday night; he would
at once become Sunday night; he would
lose his Sabbath and have twelve conse-
cutive week days unrelied by a day of
rest. If he arrived at it in the early
morning of December 25, it would at
once become December 26; he would
with him would lose their Christmas.
But if, on the other hand, instead of
westward he went eastward at the same
rate, it is plain that his days would be
but twenty-three hours long; he would
lose a day of his calendar. The re-adjust-
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The Apiary.

Suggestions for This Honey Season.

The much talked of clover season is
here, and bees are hovering over the
fragrant bloom and drawing up the pre-
cious nectar from the tiny wells. Every
facility for depositing honey should now
be given them, and no colony be allowed
to cluster on the outside for want of
storage room. As fast as the combs are
sealed, remove them, so that their deli-
cate whiteness may not be impaired by
the bees travelling over the caps and
the surplus receptacles are filled with
comb builders, and there are more bees
clustered on the outside, more room
should be provided and they should be
given a hint to go in and possess it.

Sometimes bees cluster on the outside
because the bees of the hive is too great
and there is danger of the comb melting
and breaking down. Supply all needed
ventilation from below and raise the
cover or the cap above the surplus ar-
rangement. It may be necessary at times
to shade the hive, but no bee master al-
lows his bees to remain in idleness dur-
ing the season of flowing nectar.

Bees may be prevented from swarming
by using the extractor freely. Some bee-
keepers say that honey should not be ex-
tracted before it is fully ripened and
sealed, while others equally successful,
practice and recommend extracting be-
fore sealing and evaporate afterwards.
This is done in California in large tanks,
in the hot sun. The thin honey rises to
the top, while the thick is drawn through
a gate at the bottom.

In order to produce a fine article of ex-
tracted clover honey, clean comb should
be given the bees at the commencement
of the flow and extracted and sealed
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The Stock Yards.

Weekly Review of the Live Stock Market.

The receipts and shipments for the week ending Tuesday, July 15th, were as follows:

RECEIPTS.

	Cattle.	Hogs.	Sheep.	Mules.
Wednesday	1314	6354	1554	18
Thursday	2815	7890	403	162
Friday	963	4618	1985	742
Saturday	83	4841	1985	742
Sunday	3491	5140	631	218
Tuesday	3882	5569	837	11
Total	13,010	27,787	5,390	1,364
Last week	11,843	17,159	7,018	990

SHIPMENTS.

	Cattle.	Hogs.	Sheep.	Mules.
Wednesday	1708	1536	220	8
Thursday	2574	1287	255	70
Friday	721	3119	1885	79
Saturday	230	3669	214	173
Sunday	1475	8627	432	57
Tuesday	1210	156	1625	123
Total	9,027	17,334	4,631	3,133
Last week	8,210	21,198	2,857	1,335

In the year 1880 Australia sent 400 carcasses of frozen mutton to England by way of a beginning. The following year the number was increased to 17,755, and in 1882 Australia and New Zealand sent 66,000 frozen sheep. In 1883 this supply was nearly tripled, the number being 184,000. The first three months of the present year have shown imports of 11,215 car cases from Australia and New Zealand, or at the astounding rate of 384,660 sheep per year, or an average of 7,393 per week.

A great many cattle are being brought to Colorado from New and Old Mexico. Stock cattle are worth \$3 to \$4 per head, beef steers \$4 to \$5 for three and four year olds, and range cattle that were fed through the winter are bringing more.

The hog packers at Chicago held a meeting last week in which they had agreed that from Friday 15th they would buy no more hogs from scaplers, and that after Saturday they would only buy with the customary shrinkage of 40 lbs. for piggy sows, and 80 lbs. for stags.

What course St. Louis will take in regard to the hog packers is a matter of much uncertainty. As yet nothing has been done one way or the other, both sides watching the effect in Chicago.

The number of hogs packed in the West has fallen of late, but the total since March 1st is 2,065,000 hogs, against 1,885,000 a year ago, a gain of 230,000 hogs.

Nebraska is coming to the front in stock matters. For many years the hog of that State has been of the finest. The improvement in the general average of cattle is a slower process, but it is going on all over the State.

Chairman of the Financial Committee appointed to solicit subscriptions from stockmen for the cattle convention, shows contributions to the amount of \$245 up to date.

Massachusetts has 3,791 cows less than a year ago. The largest decrease is in the eastern part of the State, where the milk contractors have reduced the price paid farmers below the real cost of production; hence the formation of the Massachusetts Dairy Company.

Members of the Eastern Butcher's Protective Association are getting themselves in trouble in New York City by distributing placards headed "Beware! Beware!" and telling the readers not to patronize any butcher who sells Chicago dressed meat.

Mr. Jim Delzell, a dealer in dressed meat, has been arrested by the Chicago police for the red placard of the Central Labor Union, bearing the notice "No Chicago dressed meat sold here." Several of the members were arrested in their "boycotting" attempt and fined.

Twenty cars of corn were loaded by Messrs. Clinton and Miller, of Red Fork, I. T., at St. Louis last week, and the run was made over the St. Louis and San Francisco, so that the stock was unloaded at the National Yards twenty-five hours after leaving their destination. This is considered the fastest time on record.

The statement of the Kansas City roads shows that during the six months ending July 1st, the Chicago and Alton forwarded 5,252 cars of live stock; the Washburn 3,112, and the Hannibal & St. Joe 5,269 cars.

The official report of the live stock traffic of the east bound roads from St. Louis for the first six months of the year, shows a large increase, and bears out the assertion made by dealers that St. Louis is getting away with Chicago as a live stock market. The number of cars forwarded by each of the five pooled cars as compared with the same time last year were:

	1884.	1883.
Chicago and Alton	3,444	2,683
Washburn	2,726	2,757
Hannibal & St. Joe	5,269	5,269
Vandalia	3,442	2,757
Ohio and Mississippi	312	1,174
Total	13,344	11,511

The C. and A. has gained 135 cars, the B. & O. 168, and the Vandalia 83. While the Washburn lost 959 cars, due to the general decrease of the road, and the O. & M. 839 cars, which is to be attributed to the spring floods.

The first two car loads of refrigerator beef which is to be shipped from Texas to this city arrived here at noon Sunday and will be placed upon sale the next day. It is expected that this movement will materially reduce the price of fresh meat, as the managers claim that they can sell the dressed meat cheaper than cattle can be purchased on the border.

CATTLE—Weakness and an unsettled feeling was the leading feature at the opening of the general cattle market this week. Prices ruled irregular and 25 cents lower in all grades of native cattle. Eastern buyers from the start and indeed during the entire week made strong efforts to keep prices down, but were only partially successful. Holders with the assistance of a small supply, more urgent demand and favorable eastern markets succeeded in holding prices steady and in some instances a little stronger prices were obtained, though there was no quotable advance, the range of sales being made at \$6.00 for heavy well-matured steers, \$5.50 to \$5.75 for fair to medium, and \$5.25 to \$5.50 for light weights. The week's market for Texas and Indiana cattle has been an active one, and in many respects the general trade was without new features. Values as compared with those current last week averaged a shade lower, but still satisfactory to owners, and the demand for good of all kinds was steady to the supply.

But seldom there was any stock carried over from day to day, the demand from dressed beef and local buyers being sufficient to clean up the arrivals at an early hour. The best prices this week were \$17.50 to \$18.00, no sales being made above these, and the great bulk of the week's trade was at very strong prices for the best, but common showed little strength.

Market to-day slow and easier, the general tendency being towards lower prices. The arrivals were large, but made up principally of Texas cattle of a poor average quality. The movement was light, owing to the heavy rain which detained both buyers and sellers. We quote:

	Receipts.	Shipments.
Good to heavy steers	\$6.00 to \$6.50	\$6.00 to \$6.50
Light to fair steers	\$5.50 to \$6.00	\$5.50 to \$6.00
Common to medium steers	\$5.00 to \$5.50	\$5.00 to \$5.50
Fair to good Colorado steers	\$5.50 to \$6.00	\$5.50 to \$6.00
Southwest steers	\$5.00 to \$5.50	\$5.00 to \$5.50
Light to good stockers	\$3.50 to \$4.00	\$3.50 to \$4.00
Fair to good feeders	\$4.25 to \$4.50	\$4.25 to \$4.50
Corned Texas steers	\$4.25 to \$4.50	\$4.25 to \$4.50
Grass Texas steers	\$4.25 to \$4.50	\$4.25 to \$4.50
Scalawags of any kind	\$2.75 to \$3.00	\$2.75 to \$3.00
Milk cows with calves	\$2.50 to \$3.00	\$2.50 to \$3.00
Feeders	\$3.00 to \$3.50	\$3.00 to \$3.50

HOGS—At the opening of this market, prices were 10c lower on all grades. The sharp advance having been lost, a few Yorkers sold early at \$3.25, but later they brought \$3.20 to \$3.25. Butchers paid from \$3.25 to \$3.50, and packers \$4.00 to \$4.50, while piggy sows brought \$4.00 to \$4.50. Thursday another decline took place, prices succeeding in depressing prices 5 to 10c early. Later more strength was shown and sales were made at better rates. Yorkers bringing \$3.25 to \$3.50, with bulk at \$3.25 to \$3.50. Butchers paid \$3.25 to \$3.50. The packing demand was slow, and only a few sales were made at \$4.00 to \$4.50. Pigs bringing \$4.00 to \$4.50. Light receipts with an urgent demand forced prices up largely on Friday, and Yorkers were fully 20c higher at \$3.45 to \$3.50. Heavy hogs ruled slow, selling at \$3.50 to \$3.75, while packers were firm and unchanged at \$3.50 to \$3.75. The small supply was cleaned up early. Saturday the market was steady at \$3.50 to \$3.75. Light receipts with an urgent demand forced prices up largely on Friday, and Yorkers were fully 20c higher at \$3.45 to \$3.50. Heavy hogs ruled slow, selling at \$3.50 to \$3.75, while packers were firm and unchanged at \$3.50 to \$3.75. The small supply was cleaned up early.

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